Claims

1. A circuit arrangement for starting and operating discharge lamps (L, Lp1, Lp2), with the following features:

- an inverter, which delivers at an inverter output (N25, N26) an inverter voltage which has an inverter frequency,

- discharge lamps (L, Lp1, Lp2) with electrode filaments can be connected by means of lamp terminals (J3-J6) to the inverter output (N25) via a matching network (L3, C6, C7), which has a resonant circuit (L3, C6, C7) with a natural frequency,

- a preheating resistor (R1), which brings about damping of the resonant circuit (L3, C6, C7) via the electrode filaments during a preheating phase, with the effect that the resonant frequency of the resonant circuit (L3, C6, C7) is reduced from the natural frequency to a damping resonant frequency,

- an igniting phase, in which the preheating resistor (R1) assumes values which bring about reduced damping of the resonant circuit (L3, C6, C7) in comparison with the preheating phase, with the effect that the resonant frequency of the resonant circuit (L3, C6, C7) approaches the natural frequency,

- a controller, the controller output of which outputs an actuating signal, the controller output being coupled to the inverter in such a way that the actuating signal influences the inverter frequency,

- a first controller input, into which there is fed a first electrical variable, which corresponds to the current of the gas discharge of a connected discharge lamp (Lp1, Lp2), the first electrical variable assuming a starting value in the event that there is no gas discharge, and the first electrical variable lying above a minimum value in the event that there is a gas discharge,

- in the event that the first electrical variable assumes the starting value, the controller brings about an inverter frequency which lies between the damping resonant frequency and the natural frequency and

- in the event that the first electrical variable lies above the minimum value, the controller brings about an inverter frequency which leads to a desired lamp current or a desired lamp power.

2. The circuit arrangement as claimed in claim 1, wherein the controller has a second controller input, into which there is fed via a threshold switch (MOV), a second electrical variable, which corresponds to a second operating variable, which is a measure of the reactive energy that resonates in the resonant circuit (L3, C6, C7), the value of the second electrical variable bringing about a greater value of the inverter frequency if the threshold value of the threshold switch (MOV) is exceeded.

3. The circuit arrangement as claimed in claim 1, wherein the inverter comprises a charge pump.

4. The circuit arrangement as claimed in claim 1, wherein the inverter is a half-bridge inverter.

5. The circuit arrangement as claimed in claim 1, wherein the preheating resistor (R1) is a temperature-dependent resistor with a positive temperature coefficient.

6. The circuit arrangement as claimed in one of claims 1 to 4, characterized in that the preheating resistor (R1) is connected in series with an electronic switch.

7. A method for starting and operating discharge lamps with a circuit arrangement as claimed in claim 1, characterized by the following steps:

- damping the resonant circuit (L3, C6, C7) by a preheating resistor (R1) via electrode filaments of connected discharge lamps,

- removal of the damping of the resonant circuit (L3, C6, C7).